USDA
United States Department of Agriculture

August 22, 2016

AGRICULTURAL WASTE MANAGEMENT FIELD HANDBOOK (NEH PART 651)
210 - ENGINEERING
NOTICE WI-51

SUBJECT: ENG – National Engineering Handbook (NEH), Part 651, Agricultural Waste Management Field Handbook (AWMFH).

Purpose. Add clarification of required documentation.

Explanation of Changes. Inserted revised pages 10-WI-5 to 10-WI-8. The required documentation listed in item 2 on WI-10-7 is to include the design computations.

Filing Instructions (AWMFH):

Remove:
Directive Tabulation Sheet dated August 2016

Insert:
Directive Tabulation Sheet dated August 2016
Pages 10-WI-5 – 10-WI-8

Wisconsin supplements and transmittal notices for the AWMFH can be found on the Wisconsin NRCS website at http://www.nrcs.usda.gov/wps/portal/nrcs/detail/wi/technical/engineering/.

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Attachments

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DIRECTIVE TABULATION SHEET

Title No. 210 **Directive Name/Type: Agricultural Waste Management Field Handbook Wisconsin**

Directive Number	Issue Date	Part, Subpart, Pages, etc., or Bulletin Subject
WI-1	9/8/1992	Issues interim instructions for filing previous AWMFM WI supplements.
WI-2	11/3/1992	Instructions for filing AWMFM supplements.
WI-3	3/18/1994	Superseded by WI-14.
WI-4	10/11/1994	Canceled by National Revision.
WI-5	2/1995	Superseded by WI-18.
WI-6	2/1995	Superseded by WI-35.
WI-7	2/1995	Superseded by WI-20.
WI-8	2/1995	Superseded by WI-20.
WI-9	2/1995	Canceled by WI-25.
WI-10	2/1995	Superseded by WI-20.
WI-11	2/1995	Superseded by WI-35.
WI-12	2/23/1995	Change Notices 5-11, correct Notice 3.
WI-13	4/20/1995	Chapter 1 DATCP-DFS Regional Offices map.
WI-14	2/12/1999	Chapter 13, Manure Storage Safety, ASAE Publication.
WI-15	3/1/1999	Superseded by WI-18.
WI-16	3/16/1999	Chapter 13 Documents Reissued due to copy problems.
WI-17	4/15/1999	Chapter 16 USGS Fact Sheet on Barnyards.
WI-18	10/06/1999	Superseded by WI-25.
WI-19	1/13/2000	Superseded by WI-35.
WI-20	12/11/2001	Superseded by WI-45.
WI-21	1/23/2002	Superseded by WI-45.
WI-22	2/14/2002	Superseded by WI-25.
WI-23	5/12/2003	Superseded by WI-25.
WI-24	4/14/2004	Superseded by WI-25.
WI-25	1/26/2005	Superseded by WI-43.
WI-26	10/3/2005	Superseded by WI-29.
WI-27	12/1/2005	Superseded by WI-43.
WI-28	11/20/2007	Superseded by WI-29.
WI-29	8/1/2008	Chapter 10, Revised Companion Documents 635-1 through 4 (Companion Documents 635-1 through 3 Superseded by WI-30). Companion Document 629-1. (Superseded by WI-34).
WI-30	11/26/2008	Chapter 10, Revised Companion Documents 635-1 through 3.
WI-31	4/16/2009	Superseded by WI-43.
WI-32	5/14/2009	Chapter 10, Remove Companion Document 635-4.

DIRECTIVE TABULATION SHEET

Title No. 210 **Directive Name/Type: Agricultural Waste Management Field Handbook Wisconsin**

Directive Number	Issue Date	Part, Subpart, Pages, etc., or Bulletin Subject
WI-33	11/2/2012	Chapter 10, Companion Document 634.
WI-34	11/6/2012	Chapter 10, Companion Document 629-1.
WI-35	1/14/2014	Superseded by WI-44.
WI-36	2/6/2014	Superseded by WI-47.
WI-37	2/10/2014	Superseded by WI-40.
WI-38	2/21/2014	Superseded by WI-47.
WI-39	2/26/2014	Superseded by WI-41.
WI-40	3/24/2014	Superseded by WI-47.
WI-41	10/3/2014	Superseded by WI-47.
WI-42	2/13/2015	Superseded by WI-47.
WI-43	2/25/2015	Chapter 10, All Standard 313 Companion Documents revised.
WI-44	9/21/2015	Chapter 10, Corrected animal lot space guidelines.
WI-45	1/4/2016	Chapter 9, Removed pages WI-9-1 thru WI-9-9.
WI-46	1/5/2016	Chapter 10, Insert pages 10-WI-i and 10-WI-3.
WI-47	1/28/2016	Chapter 10, Updates to the Pre-Engineered Waste Storage Facility Information.
WI-48	2/10/2016	Chapter 10, Updates to 10-WI-3, Expansive Waterstop Summary.
WI-49	3/23/2016	Chapter 10, Insert pages 10-WI-21 and 10-WI-22, Tiry Engineering Composter.
WI-50	8/15/2016	Chapter 10, Insert pages 10-WI-23 and 10-WI-24, TC Agristorage from the Tank Connection Affiliate Group.
WI-51	8/22/2016	Chapter 10, Insert update to page 10-WI-5 to 10-WI-8 (item 2 on 10-WI-7).

USE OF PRE-ENGINEERED WASTE STORAGE FACILITIES OR COMPONENTS

General

Pre-engineered waste storage structures or components are only a portion of a waste storage facility construction plan. The remainder of the construction plan, including, but not limited to, the location map, site layout, soils investigation data, pertinent elevations, manure transfer, and other needed practices or details must be assembled. The final construction plan must be approved by a person with NRCS Engineering Job Approval Authority, DATCP Agricultural Engineer Practitioner Certification, or signed and sealed by a Professional Engineer licensed in Wisconsin. Any submittal of designs by registered engineers must be in compliance with the policy contained in the NRCS National Engineering Manual, Part 505, Non-NRCS Engineering Services, and the Wisconsin Supplements.

When a Professional Engineer signs and seals a construction plan or components used in the plans, a statement is required stating which NRCS practice standards have been met. Suggested wording for the statement that accompanies the seal and signature is as follows:

> I hereby certify that I am a licensed Professional Engineer in the State of Wisconsin; that these plans have been prepared under my direction and control in accordance with standard engineering practice and the rules of Professional Conduct in ch. A-E 8, Wisconsin Adm. Code; and that, to the best of my professional knowledge, judgment, and belief, the design represented by these plans meets the structural and other applicable design criteria requirements of U.S. Department of Agriculture, Natural Resources Conservation Services Conservation Practice Standard 313, Waste Storage Facility, dated (current date of standard).

1. Waste Storage Facilities (Structures With or Without Precast Components)

Manufacturers or suppliers of waste storage structures may choose to submit design documentation and drawings to the NRCS demonstrating compliance to the structural requirements contained in Standard 313, Waste Storage Facility. The NRCS will review and accept the engineering design of the structure, which allows it to be used as a component in projects without repeating a structural design review. The waste storage structures will be reviewed and accepted as either standard drawings or a one-at-a-time design.

Precast storage components, i.e. slats or transfer channels that have been accepted as part of a pre-engineered waste storage facility, may be incorporated into construction plans prepared by others providing the loading conditions have been verified. The person approving the construction plan will be taking the responsibility for the use of the component.

A. Standard Drawings

Standard drawings are detailed construction drawings that are essentially complete and can be used directly as a component of the construction plans. Designs and drawings submitted by others for acceptance by NRCS will contain all necessary substantiating data including design computations, conditions of use and any limitations. The State Conservation Engineer will facilitate the review of the structural design. The accepted design documentation will be on file with the State Conservation Engineer. Providers of accepted standard drawings will be placed in the Agricultural Waste Management Field Handbook, Chapter 10.

The person preparing the construction plan is responsible for all others aspects of the project. This includes adherence to design parameters and any limitations of the drawing along with preparation of the construction plans. Storage facility footprint size may be adapted to the specific volume required for the project. However, no changes are allowed to the structural components, i.e. concrete wall height or reinforcement, without the approval of the designer providing the standard drawing.

Review of Construction Plans Containing a Standard Drawing

The person reviewing a design and construction plan containing an accepted standard drawing provided by others will not need to check the structural design computations.

Items that are to be reviewed include, but are not limited to, the following:

- Volume computations
- Separation to bedrock, subsurface saturation, and wells
- Verify design parameters, i.e. soil bearing pressure, backfill materials and sources, compaction requirements, machinery loads, manure loads
- Floor slab reinforcement in compliance with Table A in Standard 313
- Waste transfer penetration details
- Maximum operating level indicator elevation

B. One-at-a-time Designs

This type of submission by others is similar to a standard drawing in that the structural design computations have been reviewed and the design method accepted by NRCS. The design computations will not have to be reviewed again when a construction plan is provided. However, inputs to the design are to be checked.

Submissions to the State Conservation Engineer for review and acceptance contain all the design computations and drawings for a range of structure sizes and wall heights. NRCS will be reviewing the design methods to verify that they will produce a structure that is in compliance with the practice standards. Each site specific design and construction plan is to use the accepted design methods. The actual structural details contained in the construction plans may be different from the samples submitted for review by the State Conservation Engineer since the project design is site specific. The design documentation samples will be on file with the State Conservation Engineer. Accepted providers of one-at-a-time designs will be placed in the Agricultural Waste Management Field Handbook, Chapter 10.

Review of Construction Plans Containing a One-at-a-time Design

The person reviewing a design and construction plan containing an accepted one-at-a-time design provided by others will not need to check the structural design computations.

Items that are to be reviewed include, but are not limited to, the following:

- Volume computations
- Separation to bedrock, subsurface saturation, and wells
- Verify design parameter inputs, i.e. soil, bearing pressures, manure loads, backfill materials and sources, computation requirements, machinery loads, etc. in the design documentation
- Floor slab reinforcement in compliance with Table A in Standard 313
- Waste transfer penetration details
- Soils at the site satisfy the required bearing pressure

- For a reinforced concrete walled structure, verify the steel reinforcement shown in the plans are consistent with the design provided
- Verify the structure dimensions shown in the plans are consistent with the design provided
- Maximum operating level indicator elevation

2. **Precast Concrete Components Not Previously Accepted in a Waste Storage Submittal**

Precast concrete components can be used, provided that the manufacturer provides design computations and a written statement, signed and sealed by a Professional Engineer licensed to practice in the State of Wisconsin, that the component meets the structural requirements contained in Standard 313. The statement, seal, and signature may be placed on a cover sheet to the component design computations or directly on a construction drawing of the component.

These sealed precast component drawings may be incorporated into construction plans prepared by NRCS, conservation partnership staffs, and other registered engineers or waste storage structure manufacturers.

3. **Prefabricated Reception Structures** (used for transfer of wastewater or contaminated runoff only per Standard 313)

Prefabricated reception structures may be used as a component of a waste transfer system in construction plans prepared by NRCS staff, conservation partnership staff, registered engineers, or waste storage suppliers provided that the approver of the construction plan provides documentation that:

1. A site investigation was conducted to determine that the separation to bedrock or subsurface saturation are in compliance with Standard 634, Waste Transfer.
2. The site soil properties will be within the parameters of the tank design loadings.
3. The structure supplied is listed on the Wisconsin Department of Safety and Professional Services, Safety and Building Division, Plumbing Products Database, and complies with all stipulations listed on the approval.
4. The structure will be prefabricated with the sidewalls integral to the base section.
5. The structure will contain only horizontal joints between any prefabricated sections. (This assures that the joint sealing material will always remain in compression.)
6. Needed appurtenances and instructions for providing a liquid-tight connection between the tank and any transfer pipes are provided.

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